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12 April 1979

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TRANSLATIONS ON PEOPLE'S REPUBLIC OF CHINA
(FOUO 3/79)

U. S. JOINT PUBLICATIONS RESEARCH SERVICE

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TRANSLATIONS ON PEOPLE'S REPUBLIC OF CHINA

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MILITARY

BRIEFS

TROOP SHIFTS NOTED--The Vietnamese have placed their Cam Ranh Bay base at the disposal of a Soviet fleet made up of a missile launching cruiser and some electronic spy ships, thereby posing a threat to the Chinese coast. The elite /Chinese/ division that was reinforced by a powerful antiaircraft unit facing Hong Kong has been redeployed along the rough coastline of Guangdong Province. Special protection is being afforded the mouth of the Pearl River and Guangzhou harbor. /Text/ /Paris VALEURS ACTUELLES in French 26 Mar 79 p 36/

CSO: 4200

ECONOMIC

PRC WANTS JAPANESE INTERMEDIARIES FOR TRADE WITH TAIWAN

Tokyo NIKKAN KOGYO SHINBUN in Japanese 3 Feb 79 p 1

[Text] With PRC Vice Premier Deng Xiaoping's visit to the United States, the chances for peacefully moving toward reunification with Taiwan have improved. According to information from informed sources on 2 February, PRC government personnel have requested Japanese trading companies to try to connect a pipeline between PRC and Taiwan. Specifically, it is said that Nissho Iwai was asked about a relay trade to handle exports of Taiwanese chemical products and raw materials to the PRC. This move, it seems, is based on a decision that, although normalization of Sino-American relations has created a political framework for reunification with Taiwan, it would be appropriate and would promote reunification if the PRC, as a moderately developed country, were to proceed with China's internal task of the four modernizations by making use of the strength of Taiwan's remarkably developed economy and not by relying only on the economic strength of Japan and the United States.

Taiwan chemical products have been produced by a national company (China Petrochemicals) with the technical cooperation of the very large American firm UCC (Union Carbide). Consequently, these products are of high quality and are cost competitive. This, it seems, is the reason for the PRC request.

The PRC is buying petrochemical related equipment in the form of equipment to break down ethylene and facilities to handle derived products. Immense plants capable of producing as much as 1.6 million tons yearly have been purchased from Japanese and European makers; but, even after their completion, these plants are expected to be operating no earlier than 1982. There is, consequently, a growing need for Taiwan products which have surplus export capability.

Since the long term trade agreement, the relative importance of equipment for the Shanghai-Baoshan steel mill and matters related to petrochemicals have overshadowed all else in business talks on plants. The Baoshan steel mill is scheduled to be completed in 1980 at the earliest; and, as a stopgap measure, the volume of Japan's steel exports to the PRC exceeded the volume of exports to the United States. This background, too, seems to lend impetus to business talks of this kind, but Nissho Iwai has taken a cautious approach, saying that "there are still many questions unresolved." They recognize, however, that the PRC's needs are growing and they do not deny that positive developments in business negotiations could be possible if only an objective situation is established. It is said that footholds not only for Taiwan exports to the PRC but for PRC exports to Taiwan as well have been started among the ethnic Chinese in Hong Kong and that Japanese firms have also been asked to cooperate in this. Reportedly, not only Nissho Iwai but other trading companies as well have been sounded out on a relay for electronics, steel and other things in which Taiwan is strong. Among Japanese economic circles as a whole there is a very hopeful feeling that it would be delightful to be able to contribute to a thaw between the PRC and Taiwan and, therefore, the spotlight is on the people of Taiwan to see which way they will go.

9111
CSO: 4105

ECONOMIC

CHINA, MBB SIGN TV SATELLITE DEVELOPMENT AGREEMENT

Paris AIR & COSMOS in French 24 Feb 79 p 35

[Article by Pierre Langereux: "China Negotiates With MBB for its Direct-Broadcasting TV Satellites"]

[Text] The German aerospace firm Messerschmitt-Boelkow-Blohm (MBB) has quite unexpectedly succeeded in concluding an agreement in principle with China for development of the Chinese national direct-broadcasting television satellite system.

The agreement was signed in Peking on 15 February 1979 jointly by Vice Premier Fang Yi and MBB officials who, on this occasion and for space matters, were representing the Eurosatellite consortium of MBB (43 percent of the stock), the French firm Aerospatiale (43 percent) and the Belgian company ETCA [Aerospace Engineering and Manufacturing] (14 percent).

The agreement is still only a "letter of intention" but it is "firm and exclusive." It authorizes MBB--theoretically acting on behalf of Eurosatellite--to develop, construct, and launch China's direct-broadcasting TV satellites. As part of the arrangement, MBB is prepared to transfer technology to the Middle Empire's industry. The exact size of the future system still has to be determined, but preliminary discussions covered some 10 direct-broadcasting TV satellites. The first--or the first three--are to be built in Germany and then Chinese industry will assume a progressively greater role in the construction of the remaining satellites.

The agreement also states that the Chinese satellites will be derived directly from those satellites MBB develops for German or European requirements and that the launch vehicle used to place them in orbit will be the same (hence, in principle, the Ariane launcher). Moreover, the timetable for development of the Chinese TV satellites will follow the timetable for German or European satellites but with a 1-year lag so as to launch the first Chinese TV satellite before the end of 1983.

This means the German or European direct-broadcasting TV satellite program would have to start in the next 3 months in order to successfully launch its first satellite during the second half of 1982.

This is an urgent project. In fact, a large Chinese delegation is scheduled to visit China in 6 weeks for detailed negotiations on ways and means of carrying out the project.

In other words, the manufacturers involved--Eurosatellite--and their governments, mainly France and Germany, should be prepared to negotiate with the Chinese by late March.

Difference Between Paris, Bonn

Consequently this leaves little time actually for the French and Germans to reach a governmental level agreement. An industrial level agreement already exists within Eurosatellite, providing Aerospatiale's assumption of the prime contractor role is not further challenged! These issues must certainly have been on the agenda of the 22-23 Franco-German summit meeting between President Giscard d'Estaing and Chancellor Helmut Schmidt. Yet there is no assurance that they were settled to the satisfaction of the two parties who each lay a claim to management of the operations.

At the restricted cabinet meeting of 20 February, the French government did, of course, agree to continue study of a national direct-broadcasting TV satellite. This project will also be discussed at the 7 March meeting of the ministerial space council.

Germany, however, has also prepared a national project--the proposed TVSAT--and states it is prepared to develop this system, alone if need be, for German requirements and for export, particularly to the Scandinavian countries--Nordsat project--where there is a market for 8 to 10 satellites over a 14-year period beginning in 1984-1985.

France Caught Short

France was unquestionably caught short by the German move in China. MBB's breakthrough now allows Germany to act alone in developing its own satellite and the Chinese satellite. Or cooperate with France, but by insisting upon German leadership of direct-broadcasting TV satellite projects in exchange for French collaboration in the Chinese satellite contract and the use of Ariane launchers to place them in orbit.

This is a deserved setback for French space export policy. France very likely muffed its chance by not allowing its space industry to negotiate directly, and with the necessary governmental backing, with a prospective customer like China.

Let this setback be at least a profitable lesson for us in the future.

8041
CSO: 3100

ECONOMIC

BRIEFS

JAPANESE PATENT OFFICIALS' VISIT--The government has decided to actively assist the Chinese Government in making necessary preparations for the introduction of a legal system under which industrial ownership will be granted to foreign firms in China. The decision was made by the Patent Office on 7 March. According to the decision, a delegation led by Kumagaya, director of the Patent Office, will visit China in April to assist China in making legal arrangements such as enacting a patent law, setting up an administrative organization and training patent examiners. The Patent Office plans to admit Chinese officials in August or September for patent administration training. Final details will be worked out when the delegation visits China. The Patent Office delegation's forthcoming visit to China is in compliance with the request made by a delegation of the Chinese State Scientific and Technological Commission when it visited Japan last December. The Japanese delegation will consist of 15 to 16 members, including Director Kumagaya and other officials of the Patent Office and the chairmen of the boards of directors of the patent organizations: The Japan Institute of Invention and Innovation, the Japan Patent Information Center, the Patent Lawyers Association, the Japan Patent Association. The delegation will visit Beijing and other places from 2 through 7 April during which it will meet with Chinese officials. [Excerpts] [Tokyo NIHON KEIZAI SHINBUN in Japanese 8 Mar 79 Morning Edition p 3 OW]

VOLVO TRUCK FACTORY--Volvo, the Swedish automobile company, is currently working on an agreement calling for the construction of a truck factory in the PRC. The deal would be worth one billion French francs. The plant would produce 50,000 trucks per year. [Text] [Paris VALEURS ACTUELLES in French 19 Mar 79 p 68]

JAPANESE SPINNING EQUIPMENT--Mitsubishi Rayon and Mitsubishi Shoji have signed a 800-million yen-worth contract with the PRC to export 18,000 spindles of secondhand acryl spinning equipment to China. The contract was initiated by a delegation of China Woolen Textile Company during its visit to Japan last September. [Tokyo NIHON KEIZAI SHINBUN in Japanese 5 Feb 79 Morning Edition p 8 OW]

CSO: 4105

SCIENCE AND TECHNOLOGY

TELEVISION BROADCASTING VIA SATELLITE DESCRIBED

Beijing HANGKONG ZHISHI [AERONAUTICAL KNOWLEDGE] in Chinese No 10, Oct 78 pp 13-15

[Article: "Direct Television Broadcasting Via Satellite"]

[Text] In July 1977, in the northeastern United States, the mountain streams became torrents, the rivers overflowed their banks and the streets of Johnstown, Pennsylvania, were a vast expanse of water. This was the third such disaster of this century. However, this time relief work was carried out more smoothly because communications lines were kept open by satellite.

The Red Cross workers in the disaster area quickly set up a small antenna 1 or 2 meters in diameter (Fig. 1) to transmit radio signals into the air. It was like there was an ear in the sky listening intently to what was happening there. Actually it was not only a sensitive "ear" in the sky, it could detect faint signals and transmit the signals long distances loud and clear with a powerful "voice." It was an experimental communications satellite the same as other stationary communications satellite also traveling in a 35,800-kilometer orbit. Why say it was stationary? That is because it made one revolution around the earth in 24 hours, just the same as the earth's period of rotation, therefore in relation to the earth, it is said to be stationary. This communications satellite could receive faint signals from many different places on the ground, amplify the signals and retransmit them. At the same time, its radiation power was high and the small ground antenna could pick up its transmitted signals. What accounts for such high ability? Originally it had two large-area solar panels which extended from both sides (Fig. 2) and kept it pointed at the sun and constantly illuminated by the sun. The electric energy produced was quite high, reaching a thousand watts, and therefore it could raise its radiation power.

Several years ago, to transmit signals to communications satellites, it was necessary to set up large antennas, transmitters and other equipment. It took at least several weeks to set up. With the new generation of

high-power communications satellites, it took on a new look. The ground antenna could be made smaller. The 1 or 2-meter antenna mentioned above is an obvious example. Recently an even smaller antenna has appeared. Its transceiving equipment is also very small and it can be packed into an ordinary briefcase (Fig. 3). It is extremely easy to use. Open up the briefcase, pull out the antenna, pick up the microphone, and in less than a minute one can communicate by satellite with somebody else with the same equipment. The communication distance may be short or long, several kilometers, several tens of kilometers, several hundred kilometers, or even several thousand kilometers. One can communicate anywhere within the "line-of-sight" of the communications satellite (Fig. 4).

Though the briefcase is light, it generally cannot be considered suitable for warfare. And so a backpack satellite communications device arose to meet the need. It weighed only 1.3 kilograms (Fig. 3) and was battery-powered. The user could contact a command post far away or across the sea via satellite, and could also contact aircraft, ships, tanks or ground stations with the same device.

Some people suppose future satellite communication devices could be made in the form of a watch to be worn on the wrist and you could communicate with the person you want to contact at any time. Sure, this is a scientific fantasy. However in the rapidly developing electronics technology of today and with the effort of scientists, scientific fantasy can become reality.

Direct Television Broadcasting

In large urban centers, tall television towers are a common sight. They stand high and can be seen from far away. The higher the television tower, the farther is its broadcasting range. However, due to various reasons, television towers cannot be built too high. Therefore, to broadcast television over long distances, there is no other way but to use the microwave relay method. Microwave relay towers are erected at high elevations at certain intervals and the broadcast is relayed from one to the other. Even so, there are still some places, especially remote or mountainous places, where there is no way to where it is very difficult to erect microwave relay towers and so they still cannot get television reception. Therefore, using satellites to broadcast television is extremely advantageous.

As early as 1964, the Olympic Games in Japan were broadcast via satellite. Nevertheless at that time, television picture signals taken at the scene had to be transmitted by cable or microwave transmission towers to distant satellite ground stations. There, large antennas 30 meters in diameter directed high-power beams carrying the television signals to the satellites. After they were relayed and amplified, the signals were sent back to earth.

Satellite ground stations in other places also needed large antennas 30 meters in diameter to receive the information from the satellite, after which the information was sent by cable or microwave transmitting towers to local television stations where it was rebroadcast. Though television via satellite could be broadcast worldwide or nationwide, it could not get away from using microwave relay towers and the problem of remote places without television reception mentioned above still could not be solved.

In the last 10-odd years there has been great development in satellite communications technology. The most obvious areas are triaxial attitude control of communications satellites has been realized, collapsible large-area solar panels have been developed, the electric energy available for satellites has been increased, and the power which could be transmitted to earth has also been increased so that small antennas could directly receive the television information transmitted by satellite. A few years ago, India leased an American experimental communications satellite and conducted experiments on educational television for the rural areas. The results showed that with small antennas they could directly receive television programs broadcast by satellite. It was an extremely effective means to popularize education and raise the cultural level of the broad mass of villagers.

Direct television broadcasting via satellite has also brought good tidings for the sick. With a small antenna on the roof of the ambulance (Fig. 3), the attendants can report by satellite to the hospital on the condition of the patient at any time along the way so that all the first aid preparations will be ready. When there are puzzling symptoms and it is necessary to seek the consulation of outside doctors, there is no need to bother them, to subject them to the strains of travel or to make them cover excessive distances to come and consult. Instead, they can be asked to conduct their examination, enquire into the patient's condition and conduct discussions by direct television broadcasting via satellite, each in their own hospital, and come up with an effective course of treatment. This not only can greatly save human and material resources, but even more important, gains time and is beneficial to the patient.

In calling scientific and technical conferences, technical experiences exchange conferences, and so forth, it is also best if a whole bunch of people from all over don't have to get together in one place, but can read papers, exchange experiences and carry on discussions in local conference rooms with direct television broadcasting via satellite.

Data Relay

To take full advantage of the effectiveness of computers, it is best to link computers from various places into a network. How can computers be linked into a network economically and effectively? It can be

accomplished via satellite. The present method is to transmit via satellite ground stations. As a further step, an antenna over 4 meters in diameter could be set up on the roof or next to the computer room to link up with other computers directly via satellite. In this way the computers of a department, set up separately in various places, can all operate at full capacity day and night. It would not get to the point where the computer in one place would be all booked up while the work load of another computer elsewhere would be underfilled and there would be idle time.

If we are to use satellites to link computers into networks, we must solve the problem of high-speed large-capacity digital communications. The present speed of digital communications is 9600 bits of information per second. It takes 7 hours to completely transmit one roll of computer tape. If the transmission speed of digital information were raised to 1.5 million bits per second it would only take 3 minutes to complete the transmission. Therefore future communications satellites will use new high-frequency wave bands for digital communications.

The first communications satellite launched by space shuttle is planned for 1980 (Fig. 5). The solar panels on this satellite will be very large, able to generate 1700 watts. Present communications satellites use the 4-6 gigahertz frequency band, the same wave band used by ground microwave communications. Therefore, to avoid mutual interference with ground microwave communications, most satellite ground stations have to be set up in interference-free areas far from their subscribers. The higher frequencies (12-14 gigahertz) used by the new communications satellites do not interfere with ground microwave communications and the ground stations can be set up near the subscribers for the convenience of the subscribers. In addition, the higher frequencies can carry more information. Their communications capacity is not as crowded as the 4-6 gigahertz wave band mentioned above. This communications satellite also uses a lower frequency wave band (2.2-2.3 gigahertz) to track space shuttles and low-orbit satellites. This communications satellite also plays a role in tracking satellites and relaying data from space. It receives information transmitted from space shuttles and satellites and retransmits it to the ground. Satellite tracking stations set up on the ground can only track 15 percent of a satellite's orbit but if this communications satellite is used for tracking, it can track 80 to 100 percent of a space shuttle's or satellite's orbit.

The nations of the world are vigorously developing system for direct television broadcasting via satellite.

In April 1978 Japan launched an experimental satellite for direct television broadcasting. West Germany has also started work on direct television broadcasting via satellite. China's territory is vast and so direct television broadcasting via satellite is even more necessary for us.

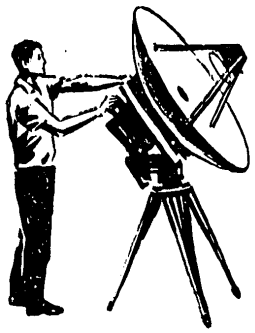

Fig. 1. Small antenna linked with communications satellite.

Fig. 2. A communications satellite with fairly high radiation power

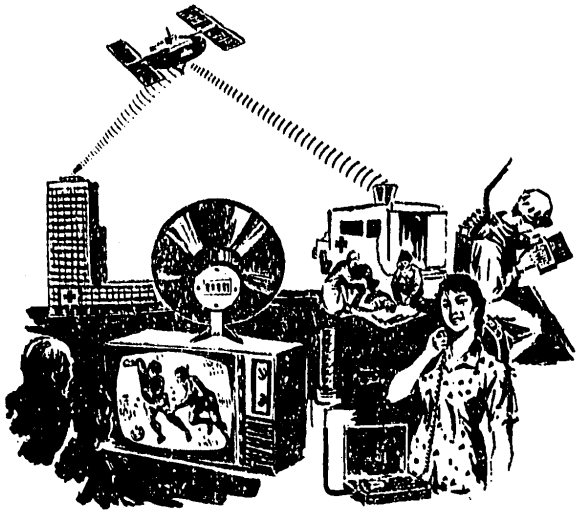

Fig. 3. Direct reception of satellite-broadcast television programs (lower left); satellite communications transceiving equipment on the ground can fit in a briefcase (lower right); backpack-type satellite communications equipment (upper right); satellite communications equipment on ambulance linked with hospital via satellite (upper left)

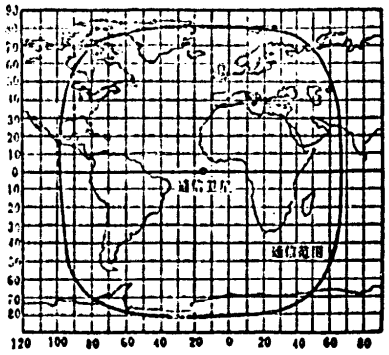

Fig. 4. Communications range of communications satellite

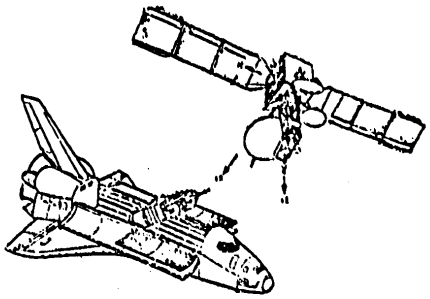

Fig. 5. Future space shuttle launches communications satellite

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